THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOE ZHENG
and JIANSU LAI

Appeal No. 1997-0888
Application 08/367,683[1]

ON BRIEF

Before HAIRSTON, BARRETT, and HECKER, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

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[1] Application for patent filed December 30, 1994, entitled "Method And Apparatus For Locating A Two-Dimensional Symbol Using A Double Template," which is a continuation of Application 08/024,386, filed March 1, 1993, now abandoned.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-8, 11-19, 22-30, 33-41 and 44. The final rejection of claims 9, 10, 20, 21, 31, 32, 42, and 43 has been withdrawn (Examiner's Answer, pages 1-2).

We reverse.

BACKGROUND

The disclosed invention is directed to methods and apparatuses for locating the position of an imaged acquisition target in a pixel image.

Claims 1 and 23 are reproduced below.

> 1. A computer-implemented method for locating the position of an imaged acquisition target in a pixel image, comprising the following steps:
>
> (a) generating image signals corresponding to said image with a camera, said image comprising said imaged acquisition target;
>
> (b) comparing said image signals with template signals corresponding to a double template at a plurality of positions within said image using a processor, said double template corresponding to an ideal acquisition target, wherein said double template comprises two identical halves; and
>
> (c) locating the position of said imaged acquisition target in said image using the processor in accordance with said comparisons of step (b).

23. A computer-implemented method for locating the position of an imaged acquisition target in a pixel image, comprising the following steps:

(a) generating image signals corresponding to said image with a camera, said image comprising said imaged acquisition target;

(b) comparing said image signals with template signals corresponding to a double template at a plurality of positions within said image using a processor, said double template corresponding to an ideal acquisition target, wherein at least one half of said double template does not correspond with a center of said ideal acquisition target; and

(c) locating the position of said imaged acquisition target in said image using the processor in accordance with said comparisons of step (b).

The Examiner relies on the following prior art references:

Dvorzsak	4,736,109	April 5, 1988
Chandler et al. (Chandler '936)	4,874,936	October 17, 1989
Chandler et al. (Chandler '029)	4,896,029	January 23, 1990
Barski et al. (Barski)	4,949,392	August 14, 1990
Ghazizadeh	5,077,809	December 31, 1991

Claim 1-6, 8, 12-17, 19, 23-28, 30, 34-39, and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dvorzsak and Ghazizadeh. The Examiner adds Barski for the

rejection of claims 11, 22, 33, and 44 and adds Chandler '029 and Chandler '936 for the rejection of claims 7, 18, 29, and 40.

We refer to the Examiner's Answer (Paper No. 22) (pages referred to as "EA__") for a statement of the Examiner's position and to the Brief (Paper No. 21) (pages referred to as "Br__") for Appellants' arguments thereagainst.

OPINION

Appellants argue (Br8): "Dvorzsak does not teach using a double template to locate a single acquisition target. If anything, Dvorzsak teaches the use of two distinct single templates to locate two distinct acquisition targets . . . ." The Examiner finds that "Dvorzsak teaches using a double template (Dvorzsak: figures 3A and 3B or figure[s] 3C and 3D) to locate a single acquisition target (Dvorzsak: 10 or 10' in figures 1 and 2)" (EA8). We think Appellants correctly summarize the Examiner's position as considering patterns 14 and 16 as part of a single acquisition target (the coded document 10) and signatures 26 and 28 as halves of a double template.

We agree with Appellants that Dvorzsak does not teach using a double template to locate a single acquisition target. A "template" is defined as an "overlay" and, therefore, a double template to locate a single acquisition target requires the two halves of the template pattern to be fixed with respect to each other to overlay the target. For example, in the example in the specification, the two templates are a constant 10 rows apart (specification, page 14). Dvorzsak determines the centroids of the positioning indicia 14 and 16 and identifies markable locations 12 relative to the determined centroids. Because the document may be skewed at an angle, the signatures 26 and 28 in Dvorzsak are a variable distance apart depending on how much the coded document 10 is rotated. Thus, the system first finds the centroid of one pattern and then finds the centroid of the other pattern and so uses two distinct single templates to locate two distinct acquisition targets. That is, the two signatures 26 and 28 are not overlaid over the coded document 10 as a template, but are overlaid separately over patterns 14 and 16, respectively.

The Examiner applies Ghazizadeh for the limitation of a double template comprising two identical halves, as recited in

independent claims 1 and 12, and states that Dvorzsak and Ghazizadeh teach one half of the double template not corresponding with a center of the ideal acquisition target. Although we find that Dvorzsak does not teach using a double template to locate a single acquisition target, we look to see whether Ghazizadeh makes up for this deficiency.

Ghazizadeh discloses a technique for character recognition in which seven sub-regions of the character are analyzed to form sequences of alternating dark and light bands that represent one small area of the character. The character image fits within a rectangular array R of pixels that is fixed for that character (col. 3, lines 57-59). The technique is illustrated in figures 1A-1D for the lower case letter "b." Two horizontal "slices" (a thin sub-array of pixels chosen from the rectangular array R that represents the image of the character), as shown in figure 1A, provide dark-and-light sequences 11S and 12S corresponding to the dark and light areas of the character at the slice. A vertical slice 13 produces a sequence 13S. "Masks" are applied to the left, right, top, and bottom of the character to produce dark-and-light sequences 14S, 15S, 16S, and 17S. The

sequences are summarized in the table at column 4, approx. lines 52-57. "Only the dark-and-light sequence of bands, not the relative or absolute size of these bands, is used to identify the character." (Abstract.)

We agree with Appellants' argument (Br8-9) that Ghazizadeh does not identify the location of the position of anything. The position of the characters is known.

We also agree with Appellants' argument (Br9) that the slices 11 and 12 of figure 1A in Ghazizadeh represent scans across a character to generate dark-and-light sequences of bands which are then used to identify the character. The sequences derived from the slices are used to identify a character, not to locate an acquisition target. The slices do not represent "templates" which are overlaid or compared with the character. Ghazizadeh matches based on the sequences of light-and-dark patterns, not by comparing a template with the character.

Accordingly, we find nothing in Ghazizadeh that suggests using a double template to locate a single acquisition target. Because all independent claims 1, 12, 23, and 34 call for a double template to locate a single acquisition target, which

limitation is not taught by Dvorzsak or Ghazizadeh, the rejection of claims 1-6, 8, 12-17, 19, 23-28, 30, 34-39, and 41 is reversed. The patents to Chandler '029, Chandler '936, and Barski do not cure the deficiencies of Dvorzsak and Ghazizadeh. Thus, the rejections of claims 7, 11, 18, 22, 29, 33, 40, and 44 are also reversed.

CONCLUSION

The rejections of claims 1-8, 11-19, 22-30, 33-41 and 44 are reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)
LEE E. BARRETT Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
STUART N. HECKER Administrative Patent Judge	)

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